Papers and Originals

Sir Thomas Browne*

Sir GEOFFREY KEYNES,† M.D., F.R.C.P., F.R.C.S., F.R.C.O.G.

Brit. med. J., 1965, 2, 1505–1510

When I was invited to speak in Norwich on the subject of Sir Thomas Browne it was obviously impossible for me to refuse. Ever since I was an undergraduate at Cambridge, nearly sixty years ago, I have cherished the image of Sir Thomas as one of my heroes, because he was not only a good doctor but was also one of the great masters of English prose, with a mind that ranged widely and fruitfully over a host of subjects—history, classics, languages, archaeology, science, natural history in all its branches, foreign travel, folk-lore, religion, and philosophy. Though pedantic, he made pedantry attractive. He was latitudinarian in his view of religion and steered clear of politics. This interest brought me the friendship of that other great doctor and humanist, Sir William Osler, then Regius Professor at Oxford.

Browne was born in 1605, the third year of James I's reign and 11 years before the death of Shakespeare. His working life, therefore, was during the reigns of Charles I and II. He was educated at Winchester and Oxford, but most of his medical studies were made abroad, chiefly in the schools of Padua and Montpellier. He was for a short time at Leyden, and took his M.D. there in 1633.

The book by which he is best known to the medical profession of the present day, his *Religio Medici*, the tolerant religion of a doctor, was written about 1636, when he was practising probably somewhere in Oxfordshire. It was published in 1642, and has been continuously in print until the present time, delighting doctors, philosophers, professors of English, and ordinary people in countless numbers. I have twice edited Browne's complete works and have never tired of reading him.

Much has been written of Browne as stylist in English prose, and ever greater interest is being taken in his mind as a mirror of the thought and philosophy of his time. He has been called the Great Amphibium—the man torn between the two worlds, ancient and modern, which he tried to reconcile.

Browne's Life in Norwich

But I do not wish to dwell on Browne the writer or philosopher. I would rather try here in Norwich to present you with some sort of picture of the man as he lived with his family in this great East Anglian city and practised his profession both here and among the gentry of the surrounding countryside.

Browne came to Norwich in 1637, it is said by the persuasions of Dr. Thomas Lushington, his former tutor at Oxford and Rector of Burnham Westgate in Norfolk, reinforced probably by other Norfolk residents, notably Sir Nicholas Bacon, ancestor of Sir Edmund Bacon of Raveningham Hall, now Lord Lieutenant of the County.

It is probable that the young doctor lived at first in lodgings in Norwich until, in 1643, he married Dorothy Mileham, a girl from Burlingham St. Peter, near the city. It is notorious that in his *Religio Medici* Browne extolled friendship above married love and said he could be "content that we might procreate like trees without conjunction, or that there were any way to perpetuate the world without this trivial and vulgar way of coition." It is equally notorious that, having married, he happily procreated a numerous family in that same vulgar way, thus suggesting that he would sometimes write in a rhetorical fashion, without intending to be taken too seriously. Later in life, in a letter to his son Edward, writing of why Nature has been so solicitous about the means of generation, he wondered why she had provided only a single organ in males, but quoted an ancient authority who had exclaimed, "Oh no, God forbid—one is too much." Yet the viper, Browne quietly observed, has two.

The time had now come for him to provide an adequate home for his wife and their prospective family. It is not known where they lived from 1643 to 1650, but it is certain that at this last date they were resident in the parish of St. Peter Mancroft in a large house at the south end of the Market Place facing the Haymarket, the side forming part of Orford Place. This fine house with its moulded ceilings and oak panelling was destroyed in 1845, the only remaining relic being the magnificent carved-oak fireplace and overmantel with great onyx bosses in panels on either side. This object, now preserved in the Castle Museum, suggests a fairly sumptuous mode of life, and we may be sure that Browne enjoyed the rewards of a large private practice, no doubt conducted mostly on horseback, but perhaps going by coach for the longer journeys.

His Attitude towards his Sons

In the absence of a national health service Dr. Browne needed all he could make. In 1678 he reminded his son Edward, then a successful physician in London, to think ahead. "The christenings and burials of my children have cost me," he says, "above two hundred pounds and their education more; beside your own, which hath been more chargeable than all the rest put together." Edward should therefore be wise while he was able to get, and save something against a bad winter and uncertainty of times.

* A lecture delivered to the Norfolk Branch of the B.M.A. in Norwich on 31 March 1965.

† Consulting Surgeon, St. Bartholomew's Hospital, London.

Thomas Browne Junior

Yet Browne was not an ungenerous father, and we get some delightful glimpses of his attitude towards his sons in the letters written to his younger boy, Thomas, born in 1647. He was unquestionably a kind and considerate parent, anxious to do everything in his power to help his children to get on in the world, but not by coddling them and enforcing parental authority. He preferred to develop independence and self-confidence, giving good advice and fostering any sign of intelligent interest in literature and affairs.

Thus we first hear of Thomas when he was sent to travel by himself in France at the age of 14. This was in 1661–2. The boy responded well, judging by the accounts he sent home of some of his experiences. His father was anxious from the start that his son should put a good face on things, and not be troubled by not knowing much French. He bade him show a decent boldness and avoid *pudor rusticus*, a fault not much seen in France. He also advised him to wear good clothes, encouraged him to learn to sing and dance, and urged him not to neglect his painting. He was to learn all the French he could, both to speak and to write—but in writing English he was to attend to his stops and date his letters. He was to learn a good gait of body, letting nothing discontent or disturb him, while living soberly and temperately. All good and sensible advice, though not oppressively so. He liked to share his own interests with the boy, telling him how his coin collection was progressing. He had bought 60 coins of King Stephen found in a grave before Christmas, and 60 Roman coins of silver. He told him of all the amusing things happening in Norwich in his absence—Coronation day for King Charles II with feasts, special services and plays by the scholars in the Market Place, beacon bonfires, and (best of all) "Cromwell hanged and burnt everywhere, whose head is now upon Westminster Hall, together with Ireton's and Bradshawe's." "Have the love and fear of God ever before your eyes. If you meet with any pretty Insects of any kind keep them in a box."

Pious admonishment was not neglected, but Browne's mind quickly ran on to what he knew would interest the boy more.

Later in the year 1662 Honest Tom, as his father usually called him, was back in England making a tour on horseback in Derbyshire with his elder brother Edward, starting out through King's Lynn, Boston, and Lincoln. In 1663 he spent a few months in Cambridge (he was still only 16), where he was told to practise his writing so as to have a good pen and style, and it wouldn't be amiss to make a drawing of the College if he had time, "but omit no opportunity in your study. *You* shall not want while *I* have it."

In 1664 Tom went to London and joined the Navy, where he quickly made his mark. He was clearly no longer in need of sage advice, though he sometimes got it. "Forget not French and Latin. No such defence against extreme cold as a woollen or flannel wascoat next the skin." Tom's sisters prayed daily for their pretty brother, and indeed, if this were any good, he needed it. He was quickly in the thick of things, fighting the Dutch under Captain Brookes and taking part in a big action off Lowestoft under James, Duke of York, in June 1665. He was in many actions in 1666, and his gallantry was noticed by Prince Rupert and the Admiral, Lord Sandwich. His proud father still gave sundry good advices, but also told him of his own good qualities. "God hath given you a stout, but generous and merciful, heart withal, and in all your life you could never behold any person in misery but with compassion, which hath been notable in you from a child."

Assurances of God's good mercy are followed without a pause by a request for a box of Jesuit's bark—that is, quinine—and he was advised to take notice of such plants as he might meet either upon the Spanish or African coast.

By June 1667 Tom was still emerging triumphantly from all his dangers. His father sent him a quotation from Aristotle on courage, and told him that to give him his due, in the whole course of this war, both in fights and other sea affairs, hazards and perils, he had very well fulfilled this character in himself. "And although you be not forward in commending yourself, yet others have not been backward to do it for you, and have so earnestly expressed your courage, valour and resolution; your sober and studious and observing course of life; your generous and obliging disposition, and the notable knowledge you have obtained in military and all kind of sea affairs, that it affordeth no small comfort unto me." He had earned the commendation of the chaplain and the love of all the ship. "Captain Fenne, a mere rough seaman, said, that if he were to choose, he would have your company before any he knew."

After this long panegyric to his gallantry, Browne tells this attractive boy: "You are mightily improved in your violin, but I would by no means have you practise upon the trumpet for many reasons. Your fencing in the ship may be good against the scurvy, but that knowledge is of little advantage in actions of the sea."

And then silence descends. Tom was barely 20 when his life ended in unknown circumstances. It is probable that he died and was buried in Clerkenwell; but we know nothing for certain, and can only imagine his father's grief and disappointment. Many years later he recalled in one of his letters Tom's generosity, mentioning John More, a scavenger, who died in his 102nd year and to whom Tom had given twopence a week all the time he was abroad, presumably having done the same in person when he was in Norwich.

Edward Browne

Edward Browne, the elder son, did not have the rather romantic attractions possessed by his brother, but he was an eminently worthy character. He had much of his father's mental ability and shared most of his interests in natural history and anatomy, but he lacked the artistry displayed by his father in both his life and his writings. Dr. Browne spared no expense, as he reminded his son, in fitting him for a medical career. As a young man Edward was allowed to travel for some time in Europe, and, having an inquiring mind, ranged much more widely than his father had intended, with corresponding outlay. But it was all taken in good part, and when Edward returned to England he was allowed to go to London to practise. Here he became physician to St. Bartholomew's Hospital in 1682 and a Fellow of the College of Physicians; he was President in the years 1704–8.

Dr. Browne showed no trace of jealousy at his son's professional success in the metropolis, and would often send his patients from Norwich to London for a second opinion from Edward, or, if it was a surgical matter, from his cousin Hobbes.

Pen Picture of Thomas Browne

If you would like to have a picture of Dr. Browne as he went about his business in Norwich, there is the description provided by his friend the Rev. John Whitefoot, Rector of Heigham. Browne's complexion and hair was answerable, he said, to his name. His stature was moderate and he was neither fat nor lean. He had an aversion to all finery in clothing, but would always keep himself warm, wearing a cloak and boots when others had discarded them. Probably he also wore a flannel waistcoat next the skin.

He was good company when at leisure, though never loquacious; in fact, he was sometimes difficult to engage in discourse. This was perhaps due to his natural modesty, which made him blush upon the least occasion, often indeed

for no obvious reason. He was always cheerful, but rarely merry, and was seldom heard to joke. If he did, he blushed at the levity of it. But this habitual gravity was unaffected, and he never wasted any time that could be spared from the drudgery of his practice. He was temperamentally unable to do nothing.

The result was his immense learning, his command of languages, his literary reputation, and his wide acquaintance with the learned men of his time, both in England and abroad —though he seems never over many years to have left the neighbourhood of Norwich.

His Patients and Their Diseases

Browne's own sensitive nature made him sympathetic towards psychological disturbances in his patients. His letters to Edward Browne contain many careful assessments of such patients as were going to London for further opinions. Thus a gentleman suffering from chronic venereal disease and having an intention to marry was commended to Edward and cousin Hobbes with the words: "Give him between you the best satisfaction without discouragement, yet with truth. He is hypochondriacal, meticulous and diffident, and apt to lay hold on what you say. He is a kind gentleman and not intemperate, at least not of late." Browne used the word meticulous in its proper sense of timid—not meaning, as we now do, carefully precise.

Another patient, a Norwich Alderman, was described as "A meticulous doubting man of a good nature and unwilling to offend God or man, and seldom without thoughts to perplex himself and making his life the more uncomfortable . . . . Encourage him in those disturbed thoughts. I am fayne to compose him sometimes by good counsel and rational arguments ; the truth is he is a very honest inoffensive person and his own foe most, but he is very temperate and sober, and I wish him health and welfare."

Another difficult patient was also an Alderman. Edward was warned, "You must have good patience, for he abounds in questions and doubts, and is soon discouraged and apt to lay hold of any words and to argue against himself or any remedies." He was also liable to become melancholic and introspective. "He is in his temper an active stirring man and full of words, and now I think weakens himself by too much speaking ever of things which are not comfortable unto him." If he went to Tonbridge to drink the waters he must be protected lest he be cheated by the empirics.

Browne constantly showed that he possessed the patience and consideration for human weaknesses that every good doctor should have.

Dr. Browne's correspondence shows that he practised his profession in such a manner as to win the respect of his colleagues and the confidence of his patients. In the therapeutics he was forced, like Harvey and so many others before him, to use the herbal polypharmacy of his time. He gave no hint of performing any major surgical operations himself. As the leading consulting physician in East Anglia he would not have regarded surgery as one of his activities. Yet he complained that "the ignorance of chirurgeons as to chirurgical operations creates so many mountebanck and stage quacksalvers. Heere hath been a montebanck these 2 months who cutts for wrye necks, coucheth cataracts & cures harelipps, &c., wherein no chirurgeon of this place being versed, hee hath had a great deale of employment to the shame of our chirurgeons." This is certainly not the case now.

For this reason, perhaps, writing to his son Edward in Paris in 1665, he expressed pleasure that Edward was seeing more patients of different sex and ages being cut for the stone. This would make him more experienced in that great operation and almost able to perform it himself "upon necessity and where none could do it." But Edward, like his father, became a physician, no doubt guiding the surgeons through his accumulated experience, without personally doing operations.

In the year 1665 the plague had reached Norwich, and the provident doctor proposed to send his daughters to Claxton, a village seven miles from Norwich, and to remove himself three or four miles out of the city. There are also many references in his letters to malaria, which was, of course, endemic in the fenny areas of East Anglia. In 1680 he wrote: "Just now while I am writing, a poore woeman of a hundred and five years old next Christmasse sent her water unto mee and seems to be under the common distemper. Shee dwells in one of the towers of the wall and wee use to bee charitable unto her, and your sisters give her often some relief."

Browne described yet another centenarian, who exhibited the phenomenon of *boulimia*, or compulsive eating. "There is a woeman," he wrote, "now living in Yarmouth an hundred and two yeares old, a person of 4 foot and an half high, very leane, very poore, and living in a meane roome without ordinary accommodation. Her yongest sonne is 45 years old ; though she answers well enough to ordinary questions, yet shee conceaves her eldest daughter to bee her mother. Butt what is remarkable in her is a kind of *boulime* or Dogge appetite ; shee greedily eating day and night all that her allowance, friends and charitable people afford her, drincking beere or water, and making little distinction of any food ether of broaths, flesh, fish, apples, peares, and any coarse food in no small quantity, insomuch that the overseers of late have been fayne to augment her weekely allowance. Shee sleeps indifferently well till hunger awakes her and then shee must have no ordinary supply whether in the day or night." Browne sent an account of this curious creature to be read to the Royal Society in London.

Other medical references are to the usual troubles so difficult to treat effectively in the seventeenth century—gout, renal stones, venereal disease, asthma, phthisis, and so forth.

In connexion with malaria he described an instance of a woman suffering from a quartan ague during pregnancy. The child was born during the attack and was extremely ill, though it survived. It had many more attacks, and in a few months was reduced almost to a skeleton, but ultimately, at 18 years, had grown into "a very full young woman." At another time he recalled a woman in a quartan ague, who, being thirsty, called for a bottle of beer she saw standing in the window. Her servant brought it hastily and she took a copious draught, but it happened to be ink, not beer. The patient "vomited much and black, and the ague left her." Another unconventional cure was effected in a member of the Bacon family. He had an excruciating dysuria, or *ardor urinae*, and was advised to eat six or seven peaches to reduce the acidity. Whereupon he devoured twenty-five, and found extraordinary relief.

Superstitions and Aberrations

Although sceptical about so many popular superstitions and a leading corrector of vulgar errors, Browne was not able to see through some of the commonest errors of his age. As a royalist he would have regarded it as wrong to doubt the efficacy of the King's touch for scrofula, and he often advised patients to submit to this ceremony. When the King came to Newmarket Browne wrote certificates for a number of people to go to him. In 1679 he had a patient with a large tumour in the neck, not due in his opinion to the common evil—that is, tuberculosis. But the King was willing to touch many in like case, and he therefore advised her to have a try. It is known that Charles II during his reign touched more than 92,000 of his subjects.

Another curious aberration was Browne's belief in the Powder of Sympathy. He was advising his son in 1680 about

a patient who had a severe haemoptysis. After writing out a conventional prescription, he added: "but I have found the pulvis sympatheticus very successful, shee bleeding upon it and wrapping up some of it in a double or treble cloath and keeping it about her."

A more serious blot on Sir Thomas Browne's reputation is the too well known occasion when he gave evidence at a trial of two supposed witches at Bury St. Edmunds in 1664. I say "too well known" because Browne's evidence was not directed specifically against the accused. Having been asked his opinion in court, he said that he believed there were such people as witches and that the children concerned appeared to have been bewitched. This opinion he was bound to give, because his religious beliefs included the reality of tutelary angels and a personal Satan. This led logically to the further reality of human witches. Browne's opinion must unfortunately have had weight with the jury, and the two women were convicted and hanged. They were at least spared the worse fate of being burned alive.

It can be claimed that Browne was a man who had no enemies. His works were sometimes criticized, but without personal rancour. On one occasion, however, shortly after his death, he was subjected to ridicule by that scurrilous scribbler Gideon Harvey (no relation to Dr. William Harvey, who was himself attacked by Gideon). Harvey published a worthless book called *The Conclave of Physicians*, attacking physicians in general and Fellows of the College in particular. Sir Thomas Browne was a Fellow, a learned man and interested in natural history. Any learned man who catches butterflies is fair game for ridicule, so Gideon Harvey concocted his anecdote on conventional lines.

"To this category [of Physicasters] belonged that famed Doctor of Norwich, who being Posted away from his House with a Coach and Four to a sick Gentleman in the Countrey, an unhappy gawdy Butterfly thwarted the Coach, upon which a halt was made, and the Doctor with the assistance of the Coach-driver, hunted so long untill they had him under the broad brimmed Beaver. Here an harangue was to be made to his conducting Auditor upon the admirable Structure, Shape, Organs, and colours of the Butterfly, particularly upon the transparent yellow, of which colour a Cap would better have fitted him than the black Velvet one. The Butterfly being cag'd up in a Box, and reserv'd to a further consideration, the Journey was pursu'd, at the end whereof the Doctor found the Patient just expir'd of a syncopal fit, and the new Widow accosting him with the information, 'That her dear Husband had passed through many of them by the help of a Cordial, and so probably might this, had she not, wretched Creature as she was! expected his coming to prescribe another.' But whether the Doctor, besides the Reprimand, and the want of his *Sostrum*, had the Justice done him to be sent home on foot I know not."

"Letter to a Friend"

There is one of Browne's writings which has a close bearing on his clinical practice and his relations with his patients. It is one of his lesser-known works, though in my estimation it ranks high in literary merit alongside *Religio Medici* and *Urne Buriall*. Its title is *A Letter to a Friend upon the Occasion of the Death of his Intimate Friend*—a clumsy title, you may say, but at least it means exactly what it says. A young man under Browne's care had died of phthisis while an older man, the patient's friend, had been absent from home. So Browne set out to write to the absent friend to acquaint him with the facts and circumstances of his bereavement. No one on earth except Browne could have invested the recital with so individual a literary aura. It is worthy of close examination by physicians, though I do not suggest that we should use it as a model to-day for clinical reports.

It has always been apparent that Browne was basing his remarks on actual observations, and was not merely indulging in a clinical fantasy; yet the characters concerned have only recently been identified. It is now pretty well certain that the patient was Robert Loveday, a man of letters and member of the Loveday family of Chediston, or Cheston, in East Suffolk. The absent friend both of Loveday and of Browne was Sir John Pettus, owner of Cheston Hall. Pettus was an authority on minerals and mining, and in 1655 Cromwell appointed him deputy governor of the royal mines in Wales and the west country. He was therefore absent from his East Anglian home when his young friend Loveday died in 1656 at the age of 35.

Browne began his recital in a characteristic way: "Give me leave to Wonder that News of this nature should have such heavy Wings, that you should hear so little concerning your dearest Friend and that I must make that unwilling Repetition to you to tell you that he is Dead and Buried, and by this time no Puny among the mighty Nations of the Dead; for though he left this world not very many days past, yet every hour you know largely addeth unto that dark Society; and considering the incessant Mortality of Mankind, you cannot conceive there dieth in the whole Earth so few as a thousand an hour."

He then discounted the likelihood that Pettus had had any telepathic communication concerning Loveday's death, though he calls this, "some secret Sense or Intimation by Dreams, thoughtful Whisperings, Mercurisms, Airy Nuncios, or sympathetical Insinuations, which many seem to have had at the Death of their dearest friends." He admits that "we must rest content with the common Road, and Appian way of knowledge by information."

Browne then refers to the well-known euphoric state of the consumptive patient, which may deceive the laity, whereas in such a condition it is "as dangerous to be sentenced by a Physician as by a Judge."

"Upon my first Visit," he wrote, "I was bold to tell them, who had not let fall hopes of his Recovery, That in my sad Opinion he was not like to behold a Grasshopper, much less to pluck another Fig." In fact, Browne had underestimated the time he had yet to live, for Loveday did not die until December of that year.

Browne then tried to comfort Pettus by telling him how easily Loveday had died. "Tho we could not have his Life, yet we missed not our desires in his soft departure, which was scarce an Expiration; and his End not unlike his Beginning, when the salient Point scarce affords a sensible motion, and his Departure so like unto Sleep, that he scarce needed the civil Ceremony of closing his Eyes; contrary unto the common way wherein Death draws up, Sleep lets fall the Eye-lids. With what strift and pains we came into this World we know not; but 'tis commonly no easie matter to get out of it: yet if it could be made out, that such who have easie Nativities have commonly hard Deaths, and contrarily; his Departure was so easie, that we might justly suspect his Birth was of another nature, and that some Juno sat cross-legg'd at his Nativity."

Pettus was also to take comfort from realizing that Loveday's disease was incurable, knowing as he did that "Monsters but seldom happen, Miracles more rarely, in Physick." Browne could find no account of a consumptive having been cured by any of Christ's miracles.

Loveday was rapidly getting worse as his 35th birthday approached, and "some," Browne says, "were of opinion, that he would leave the World on the day he entred into it: but this being a lingering Disease, and creeping softly on, nothing critical was found or expected, and he died not before fifteen days after." But Browne, meditating on various events that happened to well-known people on their birthdays, could not find these events extraordinary. "Nothing is more common with Infants than to dye on the day of their Nativity, to behold the worldly Hours and but the fractions thereof; and even to perish before their Nativity in the hidden World of

the Womb, and before their good Angel is conceived to undertake them. But in Persons who out-live many Years, and when there are no less than three hundred sixty five days to determine their Lives in every year; that the first day should make the last, that the Tail of the Snake should return into its Mouth precisely at that time, and they should wind up upon the day of their Nativity, is indeed a remarkable Coincidence, which no Astrology hath taken witty pains to salve, yet hath it been very wary in making Predictions of it."

I cannot here omit the comment that when Sir Thomas Browne died on 19 October 1682 the day was in fact his 77th birthday.

At this point in his *Letter* Browne digressed into relating various indications of approaching death valued by different authorities; he also conjectured that the early appearance of a beard did not favour expectation of a long life, but concluded that "Hairs make fallible predictions, and many Temples early gray have outlived the Psalmist's Period. Hairs which have most amused me have not been in the Face or Head but on the Back, and not in Men but Children, as I long ago observed in that Endemial Distemper of little Children in Languedock, called the *Morgellons*, wherein they critically break out with harsh Hairs on their Backs, which takes off the unquiet Symptoms of the Disease, and delivers them from Coughs and Convulsions." This reference to the *Morgellons* has long puzzled learned commentators. It is now believed to be a condition otherwise known as *Masquelons*, an irritable condition of the back caused by infestation of the hair follicles with a parasite, the *Demodex folliculorum*. This was common in children in Languedoc, and so would have been seen by Browne when he was a student at Montpellier.

After various further digressions on the teeth of mummies and on rickets, which his patient was said to have had as a child, Browne passes on to describe the conditions found post mortem: "Most Men expected to find a consumed Kell, empty and bladder-like guts, livid and marbled Lungs, and a withered *Pericardium* in this exuccous Corps: but some seemed too much to wonder that two lobes of his Lungs adhered unto his side." The most remarkable example of this he had met with "was in a Man, after a Cough of almost fifty years, in whom all the Lobes adhered unto the Pleura, and each Lobe unto another; who having also been much troubled with the Gout, brake the Rule of Cardan, and died of the Stone in the Bladder."

Later in the *Letter* Browne returned to his patient to consider his dreams and the state of mind with which he approached his death, with many digressions into folk-lore and classical allusions; but I have quoted enough of his curious clinico-philosophical discourse to give an idea of how Browne's mind sometimes worked when he allowed his fancy to play over a particular example of what must have been a common condition in those days.

Meditation on Death from Phthisis

Browne did not publish his *Letter to a Friend* during his lifetime, nor did his son think it wise to print it as long as anyone closely connected concerned in it was alive; but in 1690, as soon as Sir John Pettus had died, the tract was published. I was lucky enough many years ago to acquire a manuscript commonplace-book which had belonged to Browne's daughter Elizabeth. In this she had recorded a meditation on death from phthisis which seems to have been suggested by Robert Loveday's illness, though it was not used in the *Letter*:

"Many have thought it no Lost time to exercise their witts in the Praises of diseases, some have wittily Commended baldness, others extolled quartane agues and some have left incomiums of the Gout and think they extenuat the anguish of it when they tell what famous men, what Emperours and Learned Persons have been severe examples of that disease and that it is not a disease of fooles, but of men of Parts and sences; but none have attempted the incomium of Consumptions, which have so well deserved as to this and the other world, giving a Mercifull Conclution to the one, a Solem preparation to the other: he that prays against tormenting diseases or sudden death hath his Lettany heard in this disease, which is one of the Mercyfullest executioners of Death, whose blows are scars to be felt, which no man would be killed to be free of, wherein a man is Led, not torn, unto his transition, may number his dayes and even his Last hours and speak unto his Saviour when he is within a moment of him."

In a discussion of man's power to cure both diseases and vices Browne claimed in a wry way the greater power for his medicines as compared with divinity. "To speake nothing of the sinne against the Holy Ghost," he wrote, "whose cure not onely, but whose nature is unknowne, I can cure the gout and stone in some, sooner than Divinity [can cure] Pride or Avarice in others. I can cure vices by Physicke, when they remain incurable by Divinity, and shall obey my pils, when they contemne their precepts. I boast nothing, but plainely say, we all labour against our owne cure, for death is the cure of all diseases. There is no universall remedy I know but this, which though nauseous to queasier stomachs, yet to prepared appetites is Nectar and a pleasant potion of immortality."

Browne's Attitude Towards Death

In his *Religio Medici* Browne had also written that he was not so confined "as to dote on life, or be convulsed and tremble at the name of death: Not that I am insensible of the dread and horrour thereof, or by raking into the bowells of the deceased, or the continual sight of Anatomies, Skeletons, or Cadaverous reliques, like Vespilloes or Grave-makers, I am become stupid, or have forgot the apprehension of mortality; but that marshalling all the horrours, and contemplating the extremities thereof, I finde not any thing therein able to daunt the courage of a man, much lesse a well resolved Christian." We may therefore believe that he met his end with resignation on 19 October 1682. His body was laid in his parish church, St. Peter Mancroft, with a dignified monument on the wall over his head. But he had also written in *Urne Buriall*: "To be gnaw'd out of our graves, to have our sculs made drinking-bowls, and our bones turned into Pipes, to delight and sport our enemies, are tragicall abominations, escaped in burning Burials."

Though his skull was not actually made a drinking-bowl, it was gnawed out of his grave in 1840, when some alterations were being made in the church. Responsibility for the theft has not been fixed, but five years later the skull was deposited by a local doctor in the Norfolk and Norwich Hospital, and there it lay on a shelf accumulating dust for another 55 years. In 1900 Dr. William Osler, a lifelong admirer of Browne, was deeply moved by the sight of Browne's desecrated relic, and paid to have a dignified casket made to hold it, with inscribed silver plates on the sides. After another 22 years an event took place that would have pleased Osler had he been alive. The skull in its casket was ceremonially reinterred in the church. In recent times St. Peter Mancroft was in danger of collapsing on to Sir Thomas Browne's remains, but that danger has been averted with the help of medical men in England and America. No reproach can now be made that the City of Norwich neglects to honour one of its most distinguished citizens, to whom we are paying a tribute to-night.

Browne's Dormitive

But the hour grows late, or, as Browne put it, "the Quincunx of Heaven runs low, and 'tis time to close the five ports of knowledge." So I would like to conclude with Browne's *dormitive*, or "half adiew unto the world," with which he would take his farewell in a Colloquy with God: part of this

was set to music in the early eighteenth century, but I fear I cannot sing it to you:

"The night is come like to the day,
Depart not thou great God away.
Let not my sinnes, blacke as the night,
Eclipse the lustre of thy light.
Keepe still in my Horizon, for to me,
The Sunne makes not the day, but thee.
Thou whose nature cannot sleepe,
On my temples sentry keep;
Guard me 'gainst those watchfull foes,
Whose eyes are open while mine close.
Let no dreames my head infest,
But such as Jacob's temples blest.
While I rest, my soule advance,
Make my sleepe a holy trance:
That I may, my rest being wrought,
Awake into some holy thought.
And with as active vigour runne
My course, as doth the nimble Sunne.
Sleepe is a death, O make me try,
By sleeping what it is to die.
And as gently lay my head
Upon my Grave, as now my bed.
How ere I rest, great God let me
Awake againe at last with thee.
And thus assur'd, behold I lie
Securely, whether to wake or die.
These are my drowsie dayes, in vaine
Now I do wake to sleepe againe.
O come that houre, when I shall never
Sleepe againe, but wake for ever.

"This is the dormitive I take to bedward; I need no other Laudanum than this to make me sleepe; after which I close mine eyes in security, content to take my leave of the Sunne, and sleepe unto the Resurrection."

Mechanisms of Renal Excretion of Urobilinogen

E. BOURKE,*† M.B., B.CH., B.A.O., M.R.C.P.ED.; M. D. MILNE,* M.D., F.R.C.P.; G. S. STOKES,*‡ M.D.

Brit. med. J., 1965, 2, 1510–1514

Urobilinogen and its oxidized derivative, urobilin, have been regarded as compounds of great medical interest and importance for almost a century since their discovery by Jaffé (1868, 1869). Modern knowledge has been admirably reviewed by Watson (1963). Urobilinogen is in fact a mixture in varying proportion of three closely related chemical compounds, d-, i-, and l-urobilinogens. These are entirely derived from bacterial reduction of bilirubin in the intestinal tract. Broad spectrum antibiotics reduce the output of urobilinogen virtually to zero (Sborov *et al.*, 1951; Watson *et al.*, 1954), and none is formed by germ-free rats (Gustafsson and Lanke, 1960). The faecal output of urobilinogen in normal adults is 40–280 mg./day, and the urinary excretion 0–4 mg./day (Watson, 1937). Therefore only about 1% of the total amount formed appears in the urine. Nevertheless, estimation of urinary urobilinogen has long been used in the assessment of cases of hepatic insufficiency and of haemolytic disorders. The tacit assumption has always been made that urinary excretion parallels the plasma concentration of urobilinogen. This paper shows that this view is incorrect; urobilinogen is excreted by a combination of glomerular filtration, proximal tubular secretion, and *p*H-dependent back-diffusion in the distal tubules. Changes in urinary *p*H have a profound effect on urobilinogen excretion and clearance, these being increased in alkaline and reduced in highly acid urine. Gross changes in urinary output may therefore occur without any significant alteration of plasma urobilinogen content.

Methods

Urobilinogen was estimated in two-hourly urine collections from four normal adult subjects, three patients with haemolytic anaemias, and two patients with hepatocellular jaundice. Variation in urinary *p*H was produced by ingestion of ammonium chloride, 0.1 g./kg. body weight, or of sodium bicarbonate at the same dosage. The normal diurnal rhythm of urinary *p*H was sufficient to obtain specimens in the intermediate range of *p*H 5.5–7. Urinary *p*H was measured by glass electrode immediately after collection, and specimens were stored for short periods at −4°C. in the dark before analysis. In clearance studies a blood sample was obtained by venepuncture at the mid-point of each urinary collection period and serum separated by centrifugation.

To estimate plasma-protein binding of urobilinogen an impure specimen of urobilinogen was prepared from the faeces of a case of hereditary spherocytosis by the method of Watson *et al.* (1953). A concentrated alcoholic solution was added to normal plasma to produce a urobilinogen concentration of 100 μg./100 ml. Protein-free specimens were obtained either by ultrafiltration or by dialysis through collodion membranes. If normal plasma was used the amount of unbound urobilinogen was too low to permit accurate analysis by the available methods.

To estimate the pK_a of urobilinogen partition coefficients between water and petroleum ether of boiling range 40°–60° C. were determined at a *p*H range from 3.5–7 by means of the buffer systems acetic acid: sodium acetate in the range 3.5–5.5, and monobasic sodium phosphate: dibasic sodium phosphate in the range 5.5–7.

Chemical Methods

Urinary urobilinogen output: the colorimetric method of Watson (1936) was used. Plasma and urinary urobilinogen in clearance studies: the fluorimetric method of Lozzio and Royer (1962) was modified to correct for the blank fluorescence of the alcoholic zinc acetate used in the method.

Urobilinogen methods are not completely satisfactory because of the difficulty of obtaining standards of certain purity. In both the colorimetric and the fluorimetric methods artificial standards by means of alkaline phenolphthalein and acriflavine

* Department of Medicine, Westminster Medical School, London.
† Travelling Fellowship, University College, Dublin; Grant from Wellcome Trust.
‡ Overseas Fellowship, National Heart Foundation of Australia.